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THE HUACOS OF CHIRA VALLEY, PERU

BY SAMUEL MATHEWSON SCOTT

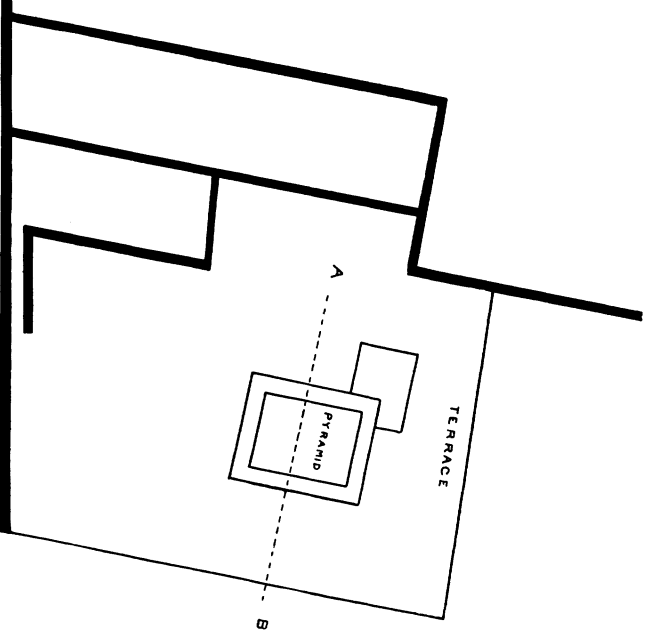
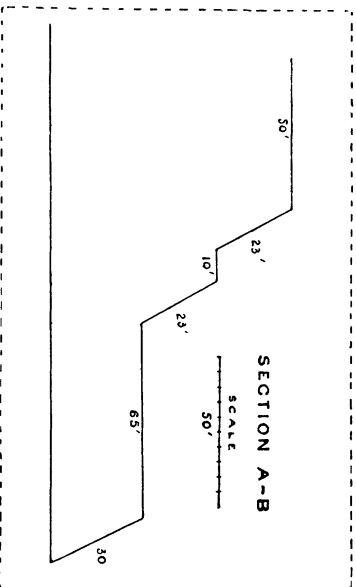
The northern portion of Peru is a vast desert extending from the sea to the Andes and for about two hundred miles from Tumbes, the first landing place of Pizarro, on the north, to Sechura, on the south, a waste of sand and rock broken only at long intervals by narrow valleys that bring down the waters from the western slopes of the mountains.

Although this dreary expanse now maintains but a scattered population, there are still many evidences that not only the valleys, but also the desert itself, once supported a numberless people. The Chira valley, through which runs the principal river of the northern region, is filled with the ruins and the graves of this once flourishing civilization. The valley has an average width of three miles in its principal portion, which reaches from the town of Sullana to the Pacific, a distance of forty miles. The land is fertile under irrigation and supplies the wants of several towns and villages adjacent to it. It is at present divided into private haciendas or farms, or held by small communities; but no general system of cultivation is followed. While some of the haciendas are scientifically irrigated, much of the land receives only such attention as its natural position makes easy.

In the days before the Spanish conquest, however, it is evident that this valley was occupied by a people who, under the system of government which the Incas always imposed upon the various nations they conquered, developed all the resources of the territory to the fullest extent possible. Remains still exist of a great irrigation canal which ran, probably, from above Sullana to the sea. Tributary ditches laid with regularity and trained judgment may yet be traced. It is principally on the uncultivable land lying between the great ditch and the cliffs that form the northern wall of the valley that the ruins and graves are found, and it was through a series of excavations in this district during the last two years that I made the collection

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SCALE
100'



of Peruvian antiquities now in the museum of the University of Pennsylvania.

The group of ruins which first attracted my attention is that situated some five miles to the westward of the town of Amotape, on the northern side of the valley, and which is known as Paredones, or the Great walls, a name which the natives have corrupted into Paderones. These ruins lie close to the cliffs of the desert, in a small bay-like ravine. They consist of a series of stone inclosures about a thousand feet long by six hundred feet wide, built in rough mud-mortared masonry, now so dilapidated that it is impossible to determine their original height. Into the center of this inclosure runs a low spur of the cliff, on which are a number of heavy adobe quadrangles, which apparently were the foundations of buildings or courts. On the western side of these walls the spur of the cliff was extended in the form of a square terrace about two hundred feet in each direction, from the center of which rises a truncated pyramid or pyramidal mound of two stories. The faces of the terrace and of the pyramid incline at a steep angle, which is reinforced by a wall or covering curiously constructed of conical adobes about the size and shape of a traditional sugar-loaf. In some portions of this facing, the cones, or *tulpas* as they are called by the natives, are set regularly one above another, the large end of the upper one resting upon the point of the lower one; but in some instances, without any apparent cause, the upper *tulpas* are inverted and their points lie between the points of the lower tier.

This arrangement may have served a decorative purpose, but the rains of centuries have so scored and destroyed the walls that no opinion can be formed of their original appearance. The face of the terrace is 30 feet high; that of each story of the pyramid 23 feet. The top of the pyramid is therefore between 75 and 80 feet above the plain. The base of the pyramid is about 90 by 75 feet; the top about 65 by 50 feet. One hundred yards to the westward of the terrace is another pyramid nearly the same size as the one just described, but differing from it in that it appears to have been built in the form of a square spiral of three stories. This second pyramid was not inside the great inclosure. An inclined road rising from the plain on the northern side of the inclosure and parallel with its wall gave access to the terrace. The arrangement of the quadrangular foundations at the upper

end of this road indicates an elaborately constructed gate or entrance.

Within the eastern portion of the inclosure, which is on a level with the plain, are numberless hillocks thickly covered by small white bivalve and spiral shells. The soil throughout this portion of the ruins is mixed with the finely powdered dust of ashes and is thickly strewn with heavy potsherds and pieces of more delicate pottery. These potsherds and ashes litter also the ground inside the large quadrangles.

As I had heard that pottery had often been exhumed in the neighborhood, I decided, after a careful examination of the ruins, that these sherds and fragments were the remains of pottery washed out by the rains, and indicated a fruitful field for excavation. I therefore set my diggers to work among the quadrangles. We soon penetrated the upper layer of ash dust and pieces of coarse jars and came upon a thick stratum of vegetable matter, which greatly resembled decaying thatch. Under this we found only the hard undisturbed soil of the spur. As repeated efforts in this direction were equally fruitless, I turned my attention to the hillocks. Here also I was disappointed. Nothing was encountered but loose earth mixed with ashes, shells, and fragments for several feet; then the hard undersoil. I learned from the natives, and confirmed their testimony by my own subsequent experience, that whatever may have been the object of these small shell-covered mounds, which are common to all the ruins of the valley and which often occur among the burial grounds, they were not used as graves, and may have been ovens for baking pottery.

Rather discouraged by my lack of success, I made inquiries among the people who live near the ruins and discovered that very little pottery had ever been found within the inclosure. One woman was able to tell me, however, that her husband and a friend had dug up several *huacos*, or pieces of pottery, in a ravine a mile or so lower down the valley, on the preceding Good Friday. The natives regard these relics of an ancient art with superstition. They believe that they are enchanted, and claim that they can be found only on Good Friday, when they come near to the surface. On that day the people go in large companies to the *huaco* fields, as they call the burial grounds, and spend the time in picnicing and digging. Whatever pottery they find

they use in their houses or sell. They can give no explanation of this idea of the charm of Good Friday, but they all accept it trustingly, and when I lighted upon a rich field shortly after my ill luck among the ruins they at once regarded me as a *brujo*, or wizard.

Following the woman's suggestion, I took a laborer with me and spent some days in exploring the ravines. We met with indifferent results until one day I came upon a quiet little valley nestled between the cliffs, in front of the village of Vichayal. We set to work at random on a gentle slope, and after digging through the tough mixture of gravel and clay that through the long years had been washed down from the hills we found a sand mixed with tiny white shells and charcoal. About a foot deep in this layer the boy uncovered the edge of what looked like a bundle of rags. He worked with his fingers for a moment and detached a piece of cloth. Jumping from the hole, he declined to dig any further.

"It is a Christian who is buried there," he said, reverently.

I seized the shovel and soon unearthed the bundle, which proved to be the bones of a baby enveloped in a coarse napkin of cotton.

"This is no Christian," I said to him; "Christian children are buried in coffins."

This argument proved conclusive; and as the soil below still showed signs of having been moved, I made him continue the work, for he had no scruples about disturbing antique bones. Some three feet lower down and about five feet below the natural level of the ground we disclosed two mummies lying side by side in the loose sand. The drainage of the slope was so rapid that no moisture had ever penetrated to the bodies, and the cloths in which they were wrapped were in perfect preservation. Beside each body was a bundle of weaving rods and a large gourd filled with *utiles*, or the long wooden sticks like knitting needles, used as shuttles. The absolute dryness of the soil had saved even these perishable things from decay. This was the first find in a field that proved very fruitful.

Almost invariably at about two feet below the surface we came upon a child's grave similar to the one first discovered. Evidently little care was taken in the burial of children under seven or eight years of age. The unembalmed body, dressed simply in a

sleeveless shirt, was tied up in a shroud and laid in the sand in some portion of the cemetery that had already been used for adults. It is rare to find pottery in these little graves. Sometimes a small stick is placed beside the body, and there may be a string of coral beads around the child's neck.

About four feet below the children's graves we meet with those of adults. These lie one below another, at irregular intervals, often to a depth of twenty feet. They differ greatly in their contents; less in their general character. The deepest graves are evidently of much greater antiquity than the upper ones. The objects they contain are fewer and of coarser quality and bear the characteristics of a less practiced art. While some bodies are buried directly in the sand, most are contained in hollow graves, into which the earth is prevented from falling by a slanting covering made of flat stones or large adobes. These graves are about eight feet long, four feet wide, and two feet deep. The dead are disposed in a manner different from that in other parts of Peru. Instead of being trussed up in sitting posture, the body lies on its back.

Some process of embalming was used, although the tissues are not preserved, as in the case of Egyptian mummies. The skin usually remains intact. The hair is perfect and is lighter in color and much finer in texture than that of the modern natives. The face also is well preserved, excepting that the eyes have fallen in and the cartilage of the nose is gone. These ancients were of about the same stature as their descendants, but they had smaller and more shapely hands and feet. The body was evidently dressed in the richest garments of the dead one. Beads of coral, fluorite, glass, and gold were twined about the neck; rings of gold or small strings of coral and copper beads adorned the fingers, and bracelets of beads encircled the arms. From the necklaces of the men hung a small pair of silver tweezers for plucking out the beard. In some instances bands in red and blue patterns were tattooed upon the wrists. The head, which always rests on the left shoulder, was covered with a kind of turban composed of strips of embroidery and fine cloth folded about the hair. The face, often tinted with a red pigment, was covered with raw cotton and tightly bound with cerements. A delicately woven fringed shawl, about a yard square and doubled diagonally, was wrapped thickly around the neck. About the

waist was usually wound a long sash, sometimes of tapestry. In this sash was occasionally tucked a small clay image; perhaps a charm or idol. It is difficult to discover the exact details of the rest of the clothing, as the moisture of decomposition and the preparations used in embalming have reduced to powder the fabrics immediately next the body. The dress of the women was apparently long and ample. The men wore a sleeveless shirt or tunic, supplemented by a cloak. On one of the ornamental water jars which I found is the figure of a man from which may be gained some idea of the usual costume.

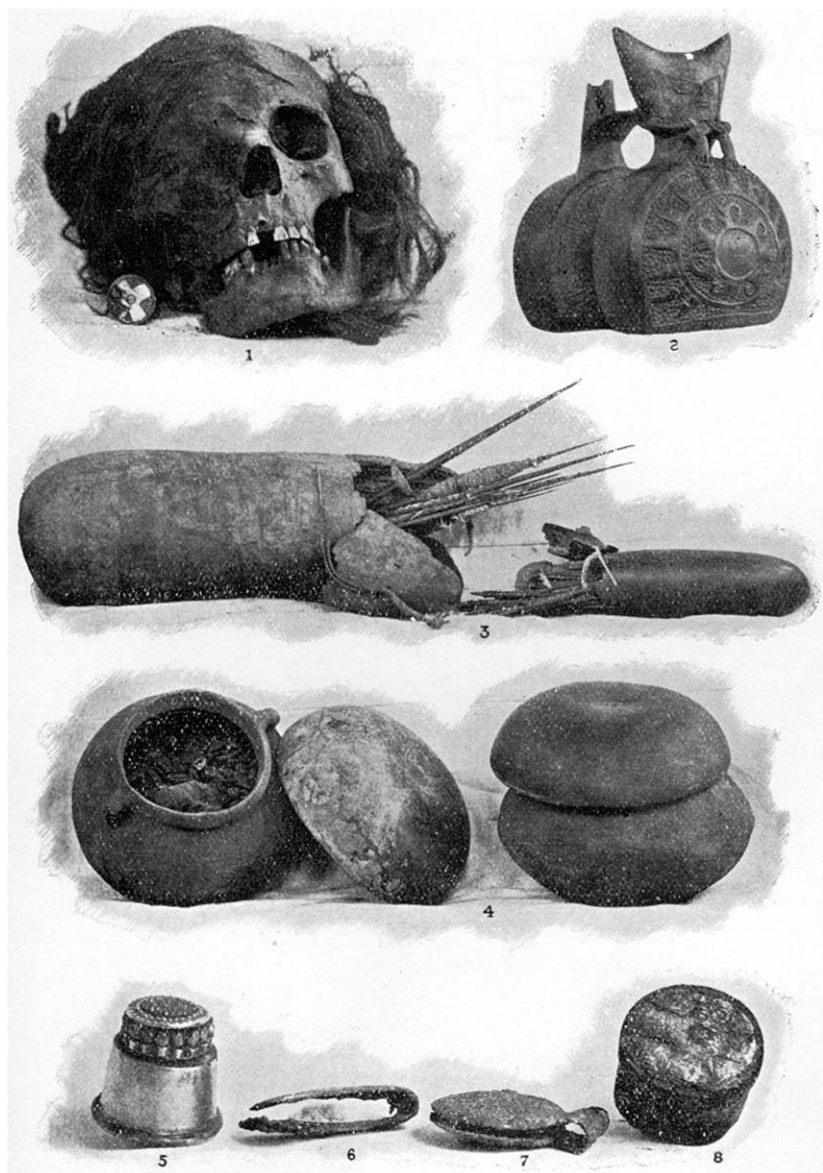
Thus carefully attired, the body, covered with a winding sheet of cotton finely woven, was placed diagonally upon a series of large square shrouds. The ends of these shrouds at either side of the corpse were then folded across and around it, and the outer edge was carefully sewed up along its entire length with a large wooden needle, which was usually left sticking in the wrappings. The ends at the head and feet were then doubled over the body and secured to one another with a stout scarf, or, if the body was small, merely tied together in a knot. The fabric of these outer coverings differs greatly, probably with the condition in life occupied by the person. Sometimes there are but two coarse sheets; more frequently there are three or four, varying in fineness from the body outward; occasionally the outermost shroud is a double quilt thickly wadded with cotton.

The grave was dug without reference to the points of the compass; but a regular system was observed in arranging the objects buried with the dead, although these objects themselves are of endless variety. At the feet of the corpse were placed several cooking pots covered with pieces of gourd or earthen plates and filled with food, meat, cooked corn, beans, frijoles; and small bundles containing whole ears of maize. There may be only one or two such pots, or there may be seven or eight. In one grave I found also a small gourd daintily wrapped in a napkin and holding a skillfully carved wooden spoon, the handle of which was fashioned into the figure of a man. At the side of the body, near the hands, were put the tools or implements used in life. In the case of men, there were walking-staffs of hardwood, with carved heads of men and animals, probably emblems of authority; small copper and stone tools—in one case the complete set of those of a silversmith, with cane blowpipes,

copper drills, and stone hammers or polishers; paint-pots made of gourds, with pigments and brushes; copper ladles used as melting pots; bows and arrows; once a barbed spear of algarroba wood very much decayed; agricultural implements, such as wooden shovels, rods, and pointed sticks; fish nets, water-bottles, and long netted traveling bags decorated in colors and filled with potatoes, ears of corn, and other provisions, and little packages of coca leaves.

In the graves of women were sets of weaving and spinning utensils similar in form, but greatly superior in finish, to those today used by the Indians. The weights for the spindles were of carved bone or shell. The various needles are prettily painted in rings, many of them still having colored threads wound upon them. The fineness of these threads and the skill and workmanship of the various fabrics show that these ancient women were more dextrous in the arts of weaving and spinning than are their descendants. The crotch for holding the *copo*, or roll of carded cotton, which today is only a natural fork cut from a tree, is in these graves an elaborately carved piece of algarroba wood. There were large gourds fashioned into work-boxes, bags full of balls of spun cotton; *yapata*, or magnesias, in large natural lumps or cut into cones like a corncob, for lubricating the thread in spinning. There were small shells containing red and blue paints, probably used in the toilet, and also larger shells wrapped in strips of rag. Some gourds containing skeins of brown and blue cotton point to the existence today of a very ancient custom. The Indian women who wear their hair in two braids always plait in similar skeins at the extremity of the braid, for the purpose, as they explain, of preventing the ends of the hair from splitting. The skeins in the gourds were doubtless used in the same way by the aborigines.

About the head of the mummy, whether male or female, were arranged the fantastic pieces of pottery in black and red clay which are known as *huracos*. These were probably filled with water or *chicha*—a beer made from corn, the beverage of ancient Peru. Upon these jars the old artists expended all their skill. The clay itself is very finely worked. The designs are infinite in variety and imitate every form of animal and vegetable life. There are jars in the shape of bananas, gourds, and melons; there are jars ornamented with human figures, climb-



Articles from Chira Valley, Peru.

- 1, Head of mummy with ear-ring in place; 2, Double huaco of black pottery with figure of man;
- 3, Gourds containing weaving implements; 4, Cooking-pots with gourd lids,
- 5, Labret; 6, 7, Tweezers; 8, Ear-ring.

ing monkeys, pelicans, parrots, fish, and serpents. There is, moreover, a distinct tendency toward the comic and grotesque—many animals have exaggerated teeth and birds have quaintly elongated bills. Very little of this class of pottery from the Chira is decorated with painting, although such decoration is common in the pottery from other parts of Peru. The pieces are also smaller than those from other districts. Besides the natural forms, there are many conventional shapes of much grace and beauty. The double whistling *huaco* is very common in this region. It consists of two vases joined by a tube; one vase forms the spout or mouth; the other is surmounted by some animal or bird, and is so devised as to emit the air through a whistle while water runs in through the spout. This whistle was probably a charm against evil spirits. One of the *huacos* which I unearthed, taken in connection with another of the collection from Chimbote, a field about four hundred miles to the south, offers a valuable suggestion as to the class of buildings which were erected upon the pyramids of the ruins. It represents a shed-like structure, roofed with thatch placed on a square base. The *huaco* from Chimbote is more significant, as it shows a building on top of a terraced pyramid, which is connected from story to story by flights of stairs. The decayed thatch which I found among the quadrangles of Paredones may have been the remains of such structures.

There are evidences that these burial places were of a consecrated character. Once, quite near the surface, I came upon a small bundle similar to a child's mummy. On opening it, however, I found inside the rough shroud, wrapped in a cotton cloth a yard square, one half of which was white, the other blue, about half the bones of a man, including the skull. They were covered with clay mud, and had evidently been gathered up, brought from a distance, and buried thus in holy ground. Thrown among them were a triple necklace of large coral beads and a piece of colored tapestry, on which was the conventionalized figure of a man. From what I learned from the contents of other graves, this piece of tapestry was a portion of the man's war or gala shirt. As the bones were dry when buried, no moisture had attacked the fabrics, and they were as good as on the day they were made. One side of the skull was crushed in, and in the center of the break was a small round hole, such as might have been made by

a spike of a club or by a bullet from a sling. The man may have been a warrior whose bones had bleached upon a distant battlefield. There was no pottery of any kind in this grave.

The similarity between the figure upon the tapestry and the human figures carved upon the wooden spoon and the walking-staffs, and also repeated upon another shirt which I found, together with the constant use of the monkey on staffs and pottery throughout this field, led me to the conclusion that these figures and animals may have served as tribal or family badges.

One of the mummies found on this slope was that of a chief or priest. The grave was hollow, but considering the importance of the occupant, it was singularly poor in contents. There was no fine pottery, and aside from a few cooking-pots and a water-jar, held only a long staff, with a human figure for a head. The wrappings of the body were very elaborate. The outside covering was a wadded quilt, embroidered all over with a figured design repeated in black, brown, and yellow; within were three shrouds beautifully woven of white cotton; each had an embroidered border in brown several inches wide of most complicated but regular geometric pattern, and in the center a large square of similar embroidery. The sumptuous attire was rich with tapestry fold upon fold, especially in the turban and in the sash. The left hand, which, as in the case of all these mummies, rested by the side, was swathed with two napkins, fringed and tasselled and embroidered in brown like the shrouds. In the palm of the hand was clasped a small black wooden vessel with a copper stopper, probably a lamp. About the neck were the strings of beads, with the silver tweezers. This was the only instance in which I found anything in the hands of the dead.

In many portions of Peru bodies have been unearthed with the mouth covered by a disk of gold. I have never seen indications of this custom on the mummies of the Chira, although I have found fragments of such disks among the ornaments hanging from the necklaces. In the graves of women, however, I discovered another custom. Through the lower lip of most of the female corpses protruded a jeweled conical-shape cylinder of silver or of gold, about an inch long and three-fourths to half an inch in diameter, slightly flanged at the larger end to prevent the piece from slipping. Most of these ornaments are badly corroded, but by good fortune in one of the little toilet gourds I found a

specimen in perfect condition. In the top is sunk a bloodstone, about which is set a circle of red coral balls, mounted separately. The body of the piece is of silver, hollow, but entirely closed. As these jewels do not occur in all the graves of females, it is possible that they were a sign of marriage. Many of the specimens have flowers of gold upon the crown instead of gems. All are wrought with great skill and show a high development of the silversmith's art. There are also other pieces of jeweler's work of great merit, such as wooden earrings inlaid with mother-of-pearl, and of gold wire twisted into spirals.

Another feature of these graves is worthy of attention. The soil with which they are filled shows signs of fire, and is thickly mixed with charcoal and pieces of charred leaves, sticks, and animal bones. These probably indicate that sacrifices formed part of the burial ceremony at the tomb, and that their remains were thus interred with the dead.

Unfortunately other duties prevented me from digging continuously upon the slope. The success of my excavations was bruited about and during my absence the natives, convinced that I was hunting for gold and buried treasure, kept up a series of diggings on their own account, which soon exhausted that portion of the field. Excavations in the level plain proved both difficult and unprofitable, as water had sunk into the graves, destroyed the contents, and damaged the pottery. I therefore continued my search in other directions. The best field proved to be the head of the ravine in which lie the ruins of Paredones. Here I found many graves, but their pottery was much coarser and cruder and seemed to belong to a remoter age than did that which I found upon the slope. The animal forms were less natural and the clay was by no means so fine. Although most of the graves had fallen in, it was clear that the same general system of burial had been followed as in the Vichayal field.

While I was carrying on this work I received an invitation from the owner of the hacienda of San Jacinto, near Sullana, to examine some *huaco* fields on his estate. As I had expected, the steward in charge of the place could tell me little about the fields beyond their locality. He merely knew that the people went digging occasionally and brought back *huacos* and "curiosities," and that some years before the mummy of a *cacique* or chief, fully dressed, had been unearthed. Two silver bowls had

been found with the body, but he could not say what had become of them.

Accompanied by a small force of peons, the steward and I left the fertile lands of the hacienda and came out upon a great barren plain about a mile in width and extending all along the foothills of the valley. Rising out of the midst of this flat stretch was a high hill irregularly surrounded by lower elevations. Inspection soon showed the eminence to be a flat-topped pyramid faced with conical adobes. The highest portion was perhaps 50 feet above the plain. The sides were about 200 feet long. Three of these sides were steeply inclined faces, running to the top without intervening stories. From the fourth or northeastern side ran out a series of rectangular additions, wings, or L's of a lesser altitude. In spite of the long washing by the rain to which they had been exposed, these additions were still fairly level on top and the walls and divisions were clearly visible. It was on the outer slopes of the lowest of these wings, in the angle formed by its junction with the main structure, that the mummy of the *cacique* had been disinterred. It was evident that after this discovery a great deal of digging had been done. Bones and skulls were lying about, and in several places walls made of large brick-like adobes had been laid bare. Though smaller in extent, this edifice, known as Cerro de Mate, greatly resembled the one at Paredones.

After I had set my peons to work the steward and I mounted the principal height or pyramid, and from there he pointed out to me, at the western extremity of the plain about five miles away, a similar hill or mound, somewhat greater in size, which he assured me was of the same nature as the one we were on. Many smaller mounds were visible all over the barren country. Close at hand lay several low mounds, like the remains of out-buildings, from 5 to 20 feet in height. Along the southern edge of the plain we could see the line of the great irrigation canal, which must have been 50 feet wide by 20 feet deep. It is possible that the mounds and pyramids that dot the plain were built from the earth excavated from this big ditch.

For two days I dug around the foot of the ruin without success so far as *huacos* were concerned, although the whole surface of the ground is covered with bits of broken pottery. I therefore ran a shaft down the center of one of the smallest of the

neighboring mounds and uncovered foundation walls and many pieces of bone, shell, and pottery. I had determined to dig until I encountered the original surface of the plain. When I had sunk the shaft about twelve feet, and more than four feet below the present general level of the country, I came upon a layer of very fine ashes some four inches thick. Under this was the original undisturbed clay, but in spite of the ashes resting upon it, it showed no signs of fire or baking. The ashes must have been brought from elsewhere and spread here before the mound was raised. While I found no graves at this point, the bones and rags scattered about proved that many bodies had been unearthed on the lower skirts of this same mound at about four feet below the surface. Possibly the foundation walls I encountered were those of a small chapel, and in digging from the top I had only gone down through its floor, under which no graves were made. The dead were doubtless buried in the outside slopes.

Taking the advice of one of my peons who knew the place, I changed the field of work to a part of the plain a mile or two to the west. Here we met with better luck, and although much of the ground had been dug over by the natives in years past, we found several *huacos*, some beads, and two of the silver lip cylinders already described. Only a few bones and strips of cloth remained of the mummies. The earth here was clay impregnated with niter. It had been so soaked by the rains and baked by the sun that it was almost impossible to dig through it. This plain is so thickly covered with potsherds and shells that I have no hesitation in saying that the whole of it is one great burying ground.

On my way back to Amotape, while nearing a small town called Tamarindo, my attention was called to some wall-like lines on top of one of the cliffs. On examining them I found that they were parts of an immense edifice larger than many of our cathedrals. It crowned a cliff at least 150 feet high. The walls were adobe, with retaining foundations of stone on the more precipitous sides of the hill. There were the outlines of many rooms and corridors. In places *huacos* had evidently been exhumed. Shells and fragments abounded as in other places. On the plain just at the foot of this cliff was another structure identical almost with the one at which I had been working.

From the cliff above I could see the two great ruins on the plain of San Jacinto, the first one five miles distant, and Cerro de Mate five miles farther east. These ruins at Tamarindo are called Capullano. Undoubtedly there was some reason for placing these huge edifices at almost equal distances and within sight of one another. On the opposite side of the river, facing Tamarindo, near the town of La Huaca, is another set of similar ruins.

It is almost vain to speculate upon the age of these various works. We know that this portion of the country was well populated at the time of Pizarro's conquest, and that the Spaniards were astonished at the advanced condition of the people; beyond this we have few data for conjecture. Such evidence as there is seems to give the works a sacred character. Religion must have played a great part in the lives of a people who made so much of death. Had they been fortresses or palaces they would hardly have been made the centers of national burial fields. The enormous quantities of ashes mingled with the earth about them may indicate the perpetual fires of sacrifice. Many of the buildings may have been in ruin long before the Spaniards came, for it seems incredible that the rains and winds and neglect of three hundred short years could have reduced them to the condition in which we now find them.

The valley, even under the most elaborate system of irrigation, could have maintained only a few thousand people, while the graves must be numbered by millions. The development in the arts of weaving, silver-working and pottery revealed by a comparison of the contents of the lower graves with those of the upper tiers must have resulted from the labor of many generations among a people so unprogressive as we know such races to have been. That graves lie thus one above another is not in itself a proof that the lowest graves greatly antedate the upper ones. They are lower because floods or rains raised the level of the valley after they were made, and the stratum newly formed above them became available for burial purposes. Such changes may have been the work of ages, but the torrential rains which sometimes break over the desert might accomplish the same result in a single season.

Physically, and no doubt intellectually, these aborigines were superior to their modern successors. They must have had an extensive commerce, for the gems found in the graves could only have come from the far north and east. But whence this

people came, how long they occupied this valley of the desert, and whether their civilization was in its zenith or in its decline at the time of Pizarro's arrival among them are mysteries which, through the absence of written records, we shall probably never be able to solve. We know that they were tributary to the great kingdom of the Incas, but otherwise we know nothing of their history.

A study of the practices of the modern natives in the light afforded by the collection shows a remarkable survival of ancient industries and methods. At Catacaos, near Piura (the old San Miguel de Piura, the first permanent city founded by the Christians in Peru), there exists today a very curious community of Indians, whose manners and customs differ greatly from those of their Cholo neighbors. They have but little intercourse socially with the people about them, marry among themselves, adhere to an obsolete form of attire, and seem to be generally in a condition of arrested development. The inhabitants may be regarded as an unchanged remnant of the past. Their principal industries are straw-braiding (they make most of the so-called Panama hats used in the world) and the manufacture of pottery. The former industry is probably a modern adaptation of an ancient art. The potters follow without change the methods of their prehistoric ancestors, but their products fall far behind in finish and artistic taste. In a hole in the ground a moistened mixture of clay and sand is set to "rot" for several days. When in proper condition this clay is formed by hand, with wooden tools, over rounded stones, into the shapes of the ordinary coarse cooking pots and other vessels for common use. The neck or mouth is made in a separate piece and joined to the body by a separate operation. When finished, the pots are dried in the sun and then piled in a rude oven, with layers of dry grass or reeds, and baked. This method of firing is very imperfect, as at least ten per cent. of the pieces are lost—a fact which accounts for the tons of fragments which lie around the ancient ovens. The fancy shapes, such as human heads, figures, fruit and vegetable forms, which are used as water jars, are made in sections, in molds of baked clay exactly like the molds found in the old graves. The art is handed down from father to son.

From the weaving tools in the collection Mr. Frank Hamilton Cushing, of Washington, has been able to reconstruct the loom

of the ancients, on which it is possible to reproduce the most intricate patterns and tapestries of the graves—a feat hitherto declared to be impossible, for as no loom frame has ever been found in Peruvian remains it was supposed that the work was accomplished by unknown methods. I was surprised to discover that Mr. Cushing's loom is identically the same as the one now in use by all the Indian women in the Chira region, although, as in the case of the pottery art, the moderns have fallen off greatly in skill. The peculiarity of this loom is that the weaver, by the use of a strap passed around the body, becomes herself the frame.

I found another case of survival in the silversmith's art. Although the present practices have been modified by modern tools and other foreign influences, the force of tradition appears in a persistent fondness for wire filagree. In the collection there is a pair of gold earrings of wire twisted into spiral cones. At Amotape, on the Chira river, I met a very intelligent half-breed named Cornejo who is an exceedingly skillful goldsmith. The art has been in his family for generations.

In one of the graves I unearthed a bundle of agricultural implements, consisting of an algarroba spade with a straight handle and blade, a short wooden dibble, and a plain stick four or five feet in length. These have their counterparts in modern times. The natives still use a straight-handled spade, but the blade is now of steel, and the dibble for planting corn and cotton. The rod in the bundle was doubtless employed as a measure of distance between the corn or cotton rows.

The superstitions and ceremonials of ante-Spanish times appear today in a thousand forms under the thin gloss of Christianity, and even in connection with many features of the modern ritual.
